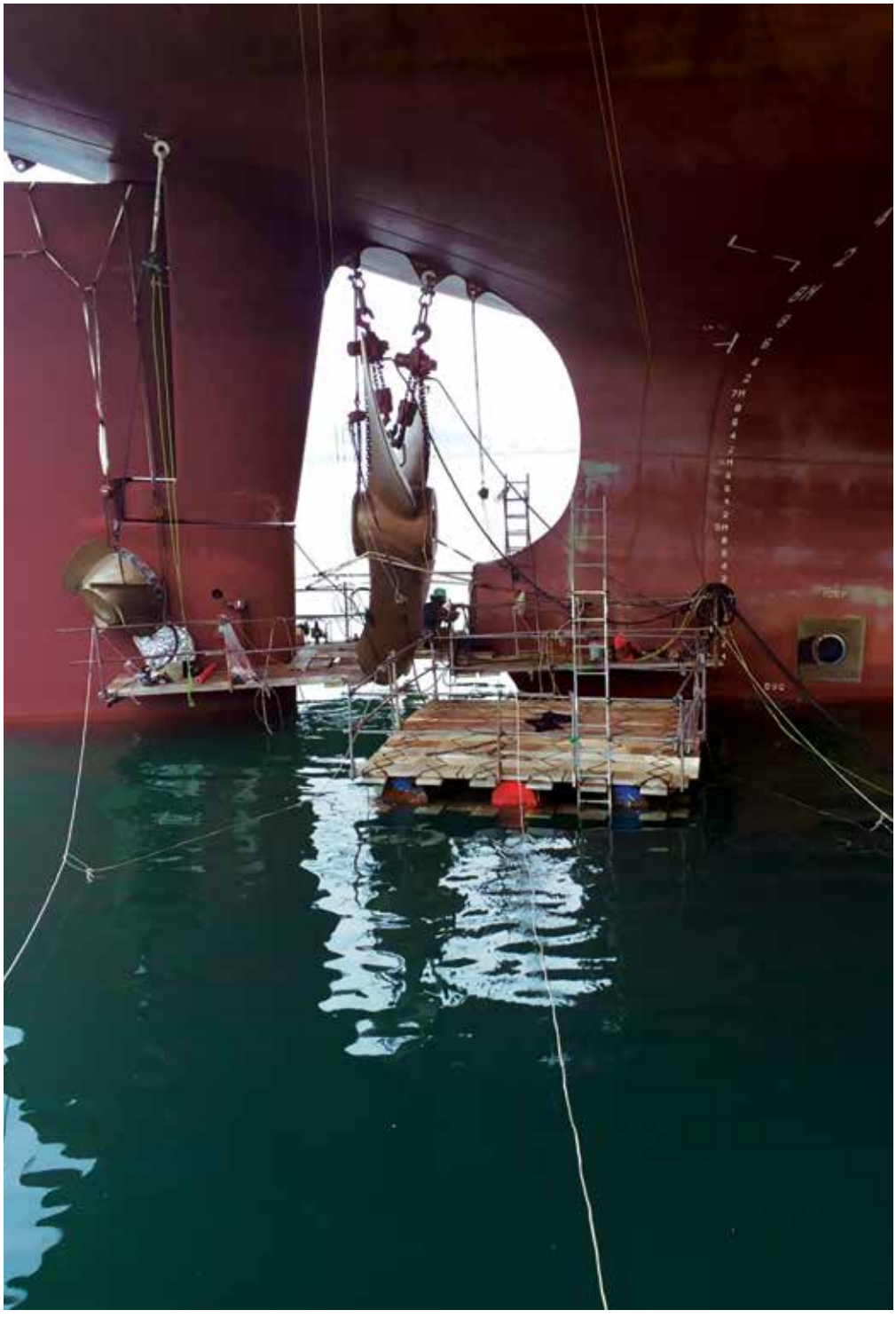
ENHANCED SHAFT ALIGNMENT (ESA)

As designers, owners and operators look to identify opportunities to improve the efficiency, reliability and safety of their vessels, one area of interest is the alignment of the propulsion shafting.

The introduction of the IMO Energy Efficiency Design Index ("EEDI") requirements and increasingly competitive markets has resulted in the need for more efficient vessels. The designs of those vessels often have the engines moved aftwards in order to maximize cargo space. At the same time, new de-rated ECO engines run at slower RPMs than before, and new "efficient" propeller designs utilizing increased blade sizes have resulted in overall heavier propellers. These factors, combined with short and stiffer propulsion lines, can create new challenges in both propulsion shaft alignment and shaft vibration whirling.



ENHANCED SHAFT ALIGNMENT NOTATION

To help designers, owners and shipyards proactively address these potential concerns, ABS has published the *Guide for Enhanced Shaft Alignment ("ESA Guide")*. The ESA Guide looks to establish systematic methods to better address the propulsion shaft alignment for vessels, to minimize the risk of issues occurring in service. The additional efforts identified in ABS' ESA Guide also seek to improve the service life of the vessel's powertrain. The ESA notation is intended primarily to be applied to shaft alignment-sensitive vessels. However, it can also be applied to a wide range of vessel types and powertrains, including geared installations.

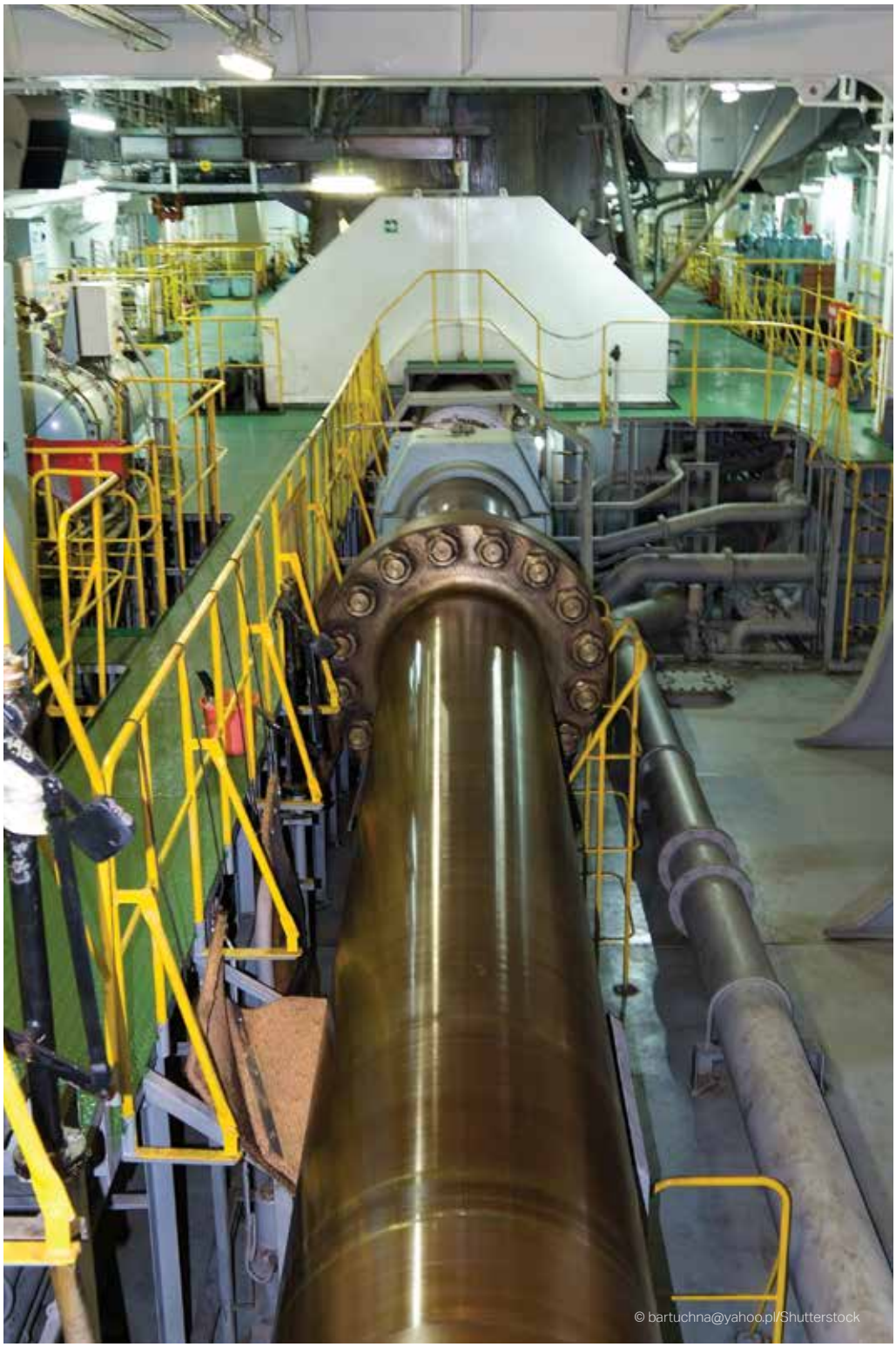
The ABS *Guide for Enhanced Shaft Alignment* calls for the optimal shaft alignment to be determined, along with expanded compulsory calculations (such as whirling analyses) and compulsory shaft alignment checks, in more conditions during sea trials. The additional requirements serve to propose further safeguards against shaft alignment bearing failures due to overheating or undue shaft vibration and whirling.

Vessels designed and built to the requirements contained within the ESA Guide will be granted the optional ESA Notation.

BENEFITS OF THE ABS ESA NOTATION

Owners and operators choosing to adopt the optional requirements within the ABS *Guide for Enhanced Shaft Alignment* will notice a number of benefits:

- Greater confidence in the standard of shaft alignment calculations and processes verification
- Tailored solutions to shaft alignment sensitive vessels
- Potentially improved shafting system integrity during the life of the vessel
- Complete shaft alignment tracking record (reference calculations and measurements through jackup tests and measurements during sea trials) in case of an incident



To learn more about ABS services for Enhanced Shaft Alignment, or other services related to shaft alignment, please contact your local ABS office or e-mail GlobalMarine@eagle.org.

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